

PHENIX WEEKLY PLANNING



4/5/2012

Don Lynch

TECHNICAL
SUPPORT
2012

This Week

- 500 GeV run continues
- No Scheduled maintenance next week (4/11 next ?)
- sPHENIX design and analysis continues
- 2012 Shutdown prep continues
- Other Business

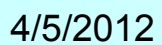
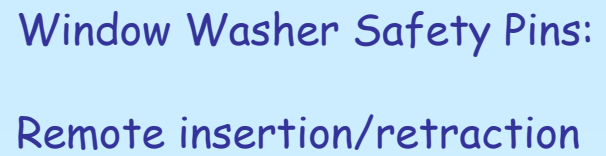
Next Week

- 500 GeV run continues
- Next Scheduled maintenance next Wednesday 4/11
 - No tasks yet scheduled
- sPHENIX design and analysis continues
- 2012 Shutdown prep continues
- Other Business



AH Crane variable speed drive
and wireless remote upgrade ??





Looking Ahead to the 2012 Shutdown (Continued)

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Rough Schedule:

Prep for shutdown	2/1-6/15/2011
Define tasks and goals	
Analysis and design of fixtures, tools and procedures	
Fabricate/procure tools and fixtures	
Tests, mockups, prototypes	
Receive, fabricate, modify, finish installables	
Review and approval of parts, tools, fixtures and procedures	
Assembly and QA tests	
Run 12 Ends	6/15/2012
Shutdown Standard Tasks	6/15-7/13/2012
• Open wall, disassemble wall, Remove MuID Collars,	
• Move EC to AH, etc.	
Disassemble VTX/FVTX services	7/2-7/20/2012
Remove VTX/FVTX and transport to Chemistry Lab	7/20/2012
Remove MMS & MMN vertical East lampshades	7/23-7/27/2012
MuTr South Station 1 work	
Install access (Sta. 1 work platforms)	7/23-7/27/2012
Disconnect Cables, hoses etc, ID/label all	7/30-8/3/2012
Remove FEE plates and chambers	8/6-8/10/2012
Station 2 Terminators and manifold upgrade through access opened by station 1 removal	8/13/-8/31/2012

Looking Ahead to the 2012 Shutdown (Continued)

MuTr South Station 1 work (Cont'd)

Clean/install new MuTr Sta. 1 chamber parts and upgrades

(concurrent At RPC Factory)

Re-install chambers and FEE plates

Re-cable, re-hose and test

Repair upgrade, test, reinstall VTX/FVTX

Station 3 North and South (upper half)

re-capacitation and air manifold upgrades

Summer Sunday (RHIC)

Substation breaker upgrade/test (CAD)

AH utility power distribution upgrade

RPC stations 1 and 3, north and south maintenance

Other detector maintenance as required

Infrastructure maintenance as required

TBD prototype tasks

pre-run commissioning and prep for run 13

Prep for EC roll in

Roll in EC

Prep IR for run

Pink/Blue/White sheets

Start run 13

8/13/-8/31/2012

9/4-9/7/2012

9/10-9/28/2012

7/23-9/17/2012

7/23-9/30/2012

8/5/12

TBD

TBD

As required

As required

As required

As required

10/1-11/30/2012

11/5-11/9/2012

11/12/2012

11/12-10/17/2010

10/17-11/30/201

12/3/2012

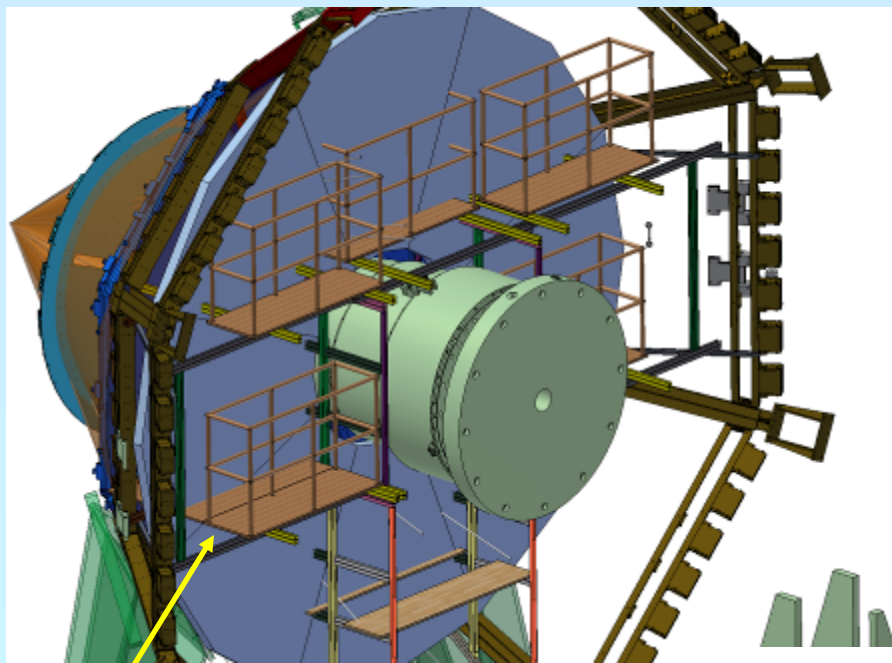


New Electrical Work for 2012 Shutdown, not yet scheduled

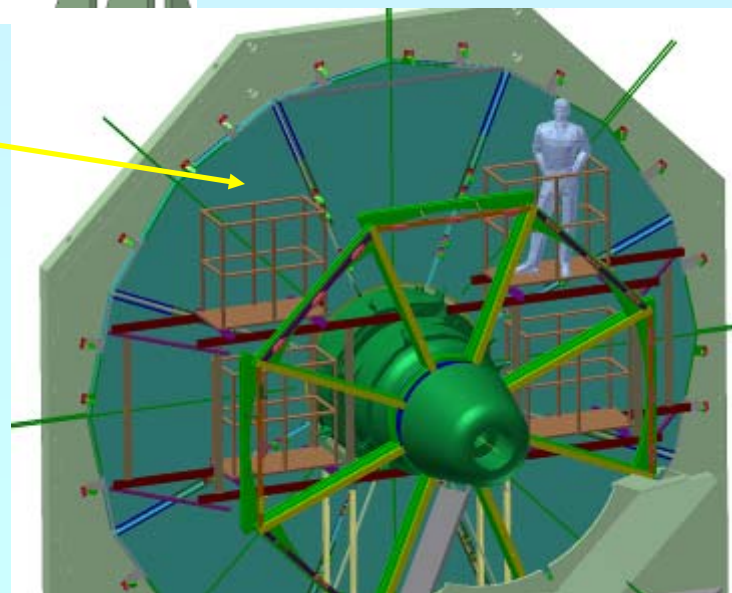
1. Support CAD replacement of Assembly Hall 480V Fused Switch Panels #8H-1, 8H-2, and 8 EMH1. Coordinate temporary power patch while work is being performed and minimize impact on shutdown work.
2. Add the Assembly Hall Crane lockout/contactors/ indicator light key switch circuit - similar to IR Crane.
3. Add Transient Surge Suppressor to 3 phase power panel on the Central Magnet Bridge.
4. The Gas Mixing House Breaker Panel for the Gas Mixing side is almost out of spare breaker slots and needs to be reviewed for increased capacity panel to replace it.
5. Work with Martin Purske on new computer rack replacements/additions for upcoming Run 13. He always has last minute Rack Room computer infrastructure changes involving power distribution circuit (UPS and normal AC power) re-work.

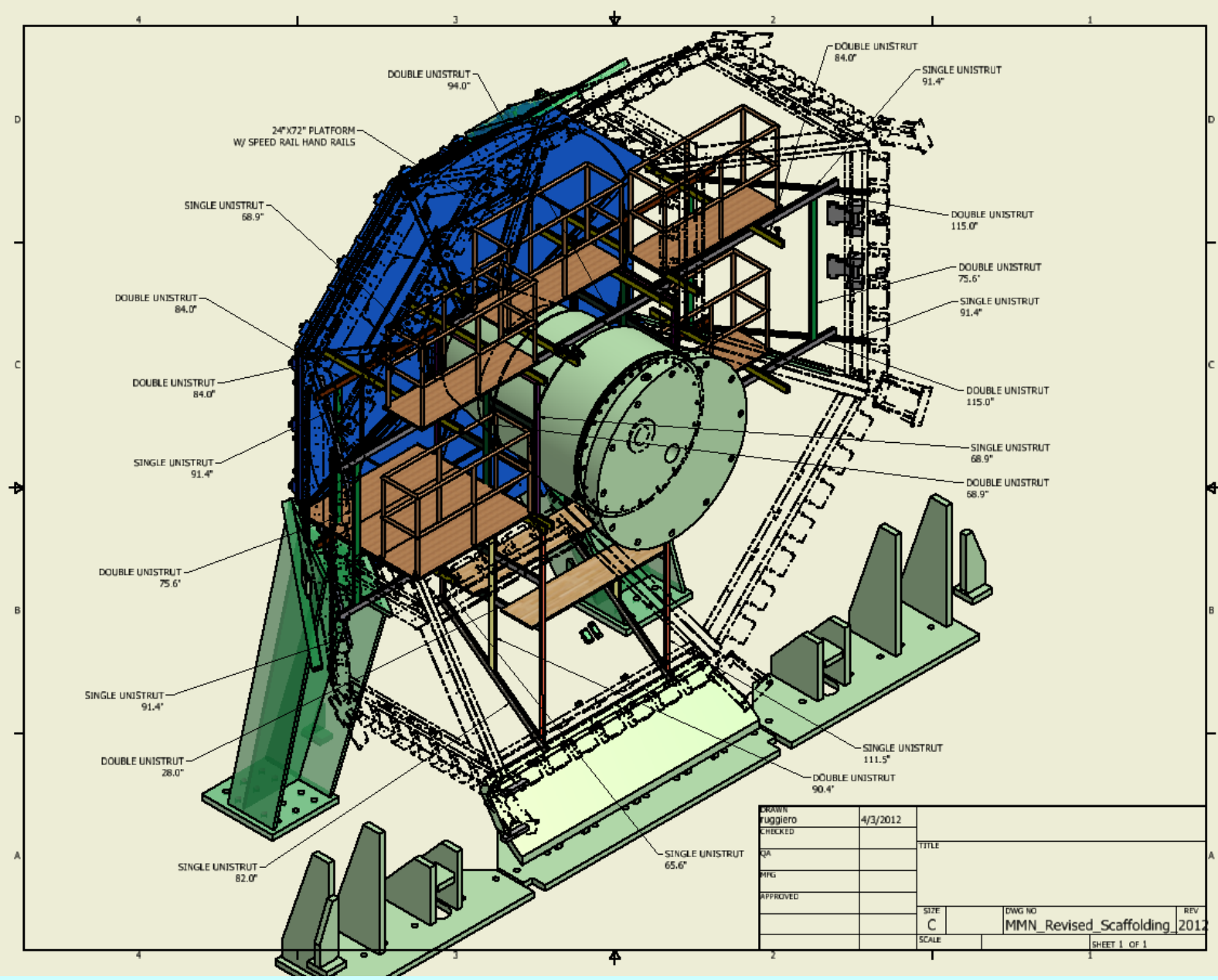
Additional Work for 2012 Shutdown, not yet scheduled

1. Replaced aging magnet hoses
2. identify obsolete services passing through sill and remove them.
3. Revisit cover for services coming from IR through sill.
4. Plan for stripping out TEC electronics and services to free up TEC racks.
5. Add limit switch and improved spooling control for window washer cable.
6. Add dusk to dawn light by gas mixing house and R134A shed

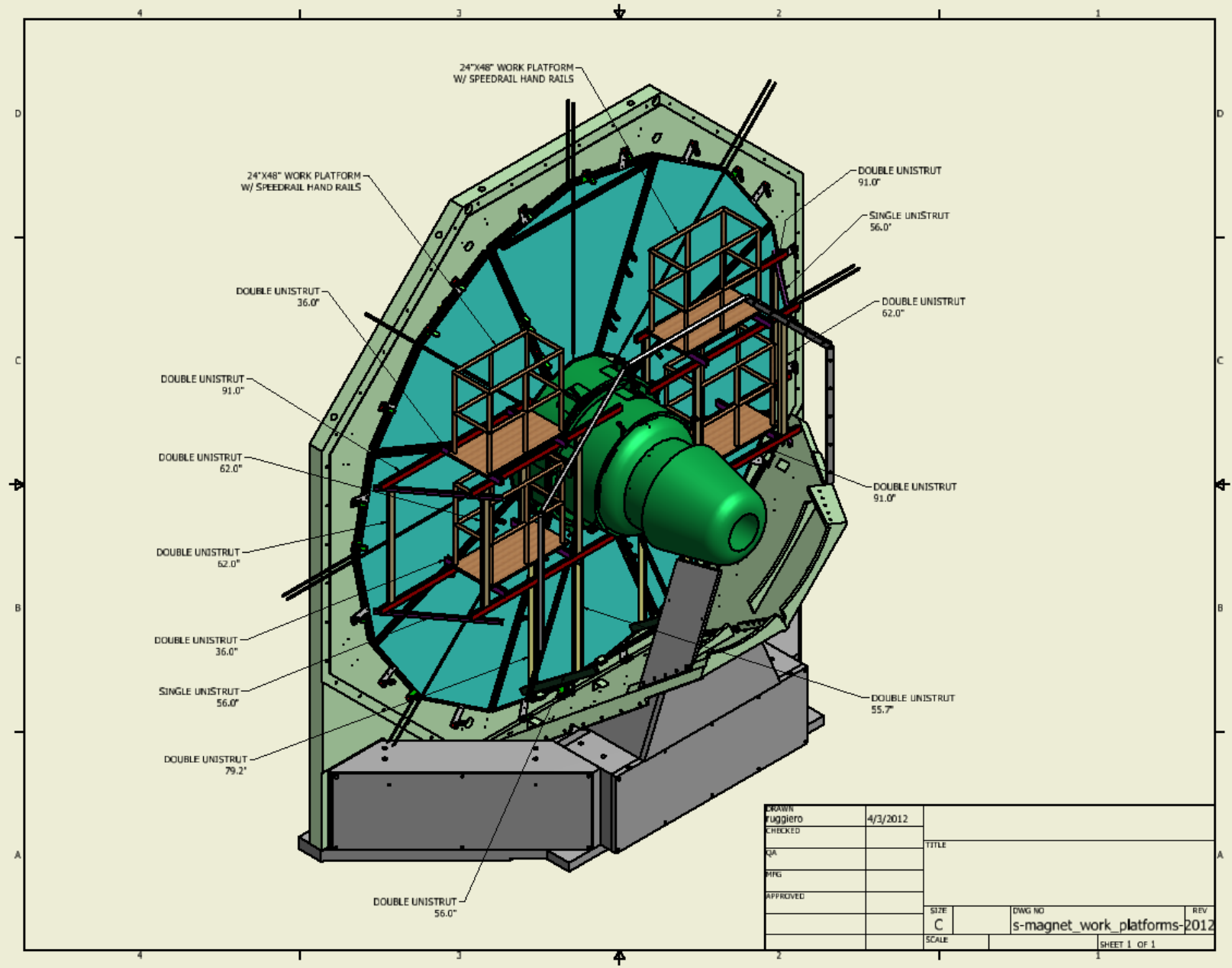


North & South internal
work platforms for next
summer's shutdown





DRAWN	Fuggiero	4/3/2012			
CHECKED					
QA				TITLE	
MFG					
APPROVED					
			SIZE	DWG NO	REV
			C	MMN Revised Scaffolding	2012
			SCALE		SHEET 1 OF 1



DRAWN	ruggiero	4/3/2012	TITLE	
CHECKED				
QA				
PMG				
APPROVED			SIZE	DWG NO
			C	s-magnet_work_platforms-2012
			SCALE	REV
				1
				SHEET 1 OF 1

sPHENIX Upgrades

PHENIX engineering and design are providing support for overall structural and spacial design and modeling, cost estimation and prototype design/fabrication

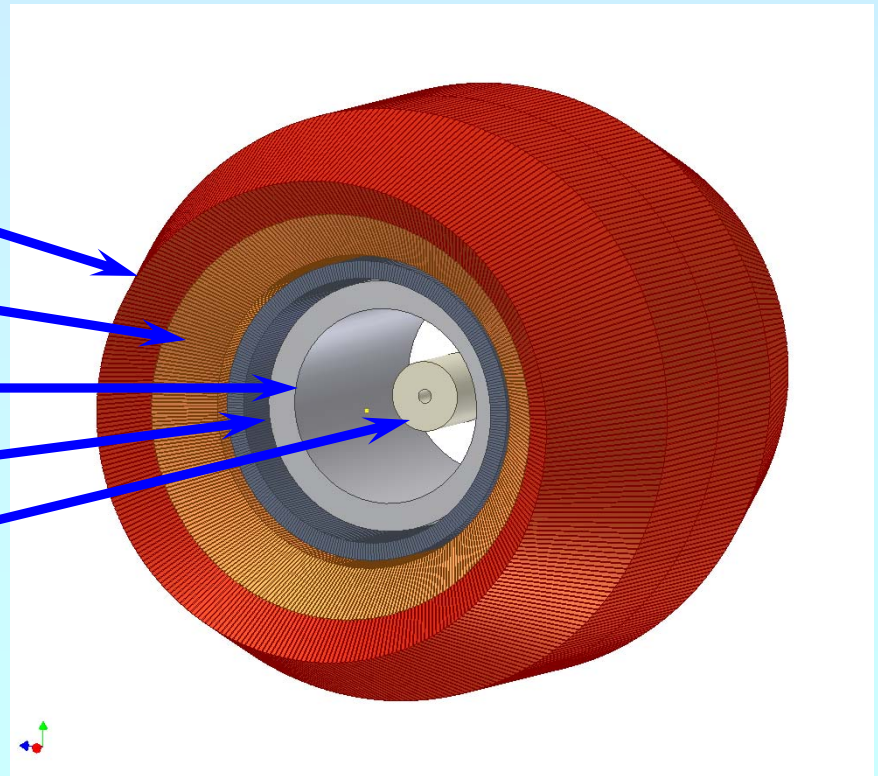
Outer Hadronic Calorimeter

Inner Hadronic Calorimeter

Superconducting Solenoid

EMCalorimeter

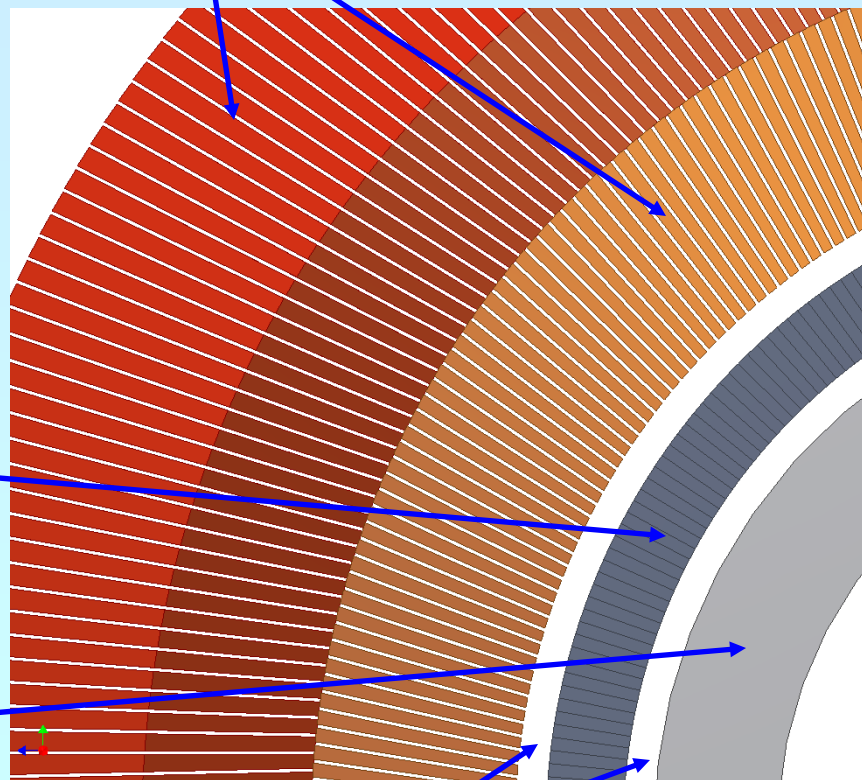
VTX3.0



Inner and outer Hadronic Calorimeters
320 segments each, steel and scintillator
0.9 meter total thickness, ~4.6 meters
long. Note how the outer and inner steel
segments are angled with respect to
radial lines (by 5 degrees, with the inner
HCal steel angled in the opposite
direction of the outer HCal steel). The
inner and outer steel plates are also
offset by a $\frac{1}{2}$ period.

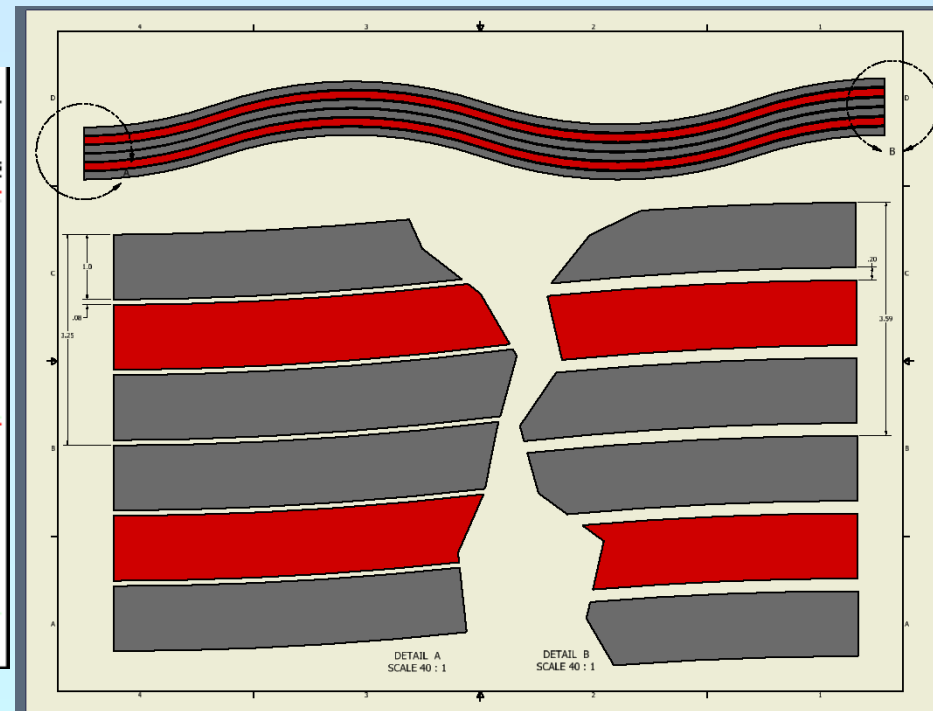
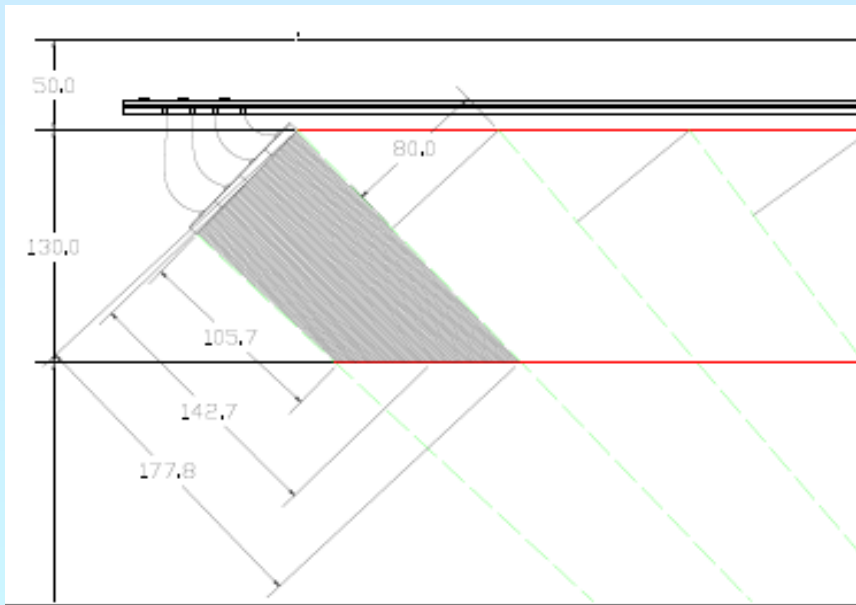
ElectroMagnetic Calorimeter
314 segments, Tungsten
and scintillator 0.1 m th
~2.8 m long

Superconducting solenoid
2 Tesla Magnet and cryostat
.70 m inner radius, .20 m th
~2 m long

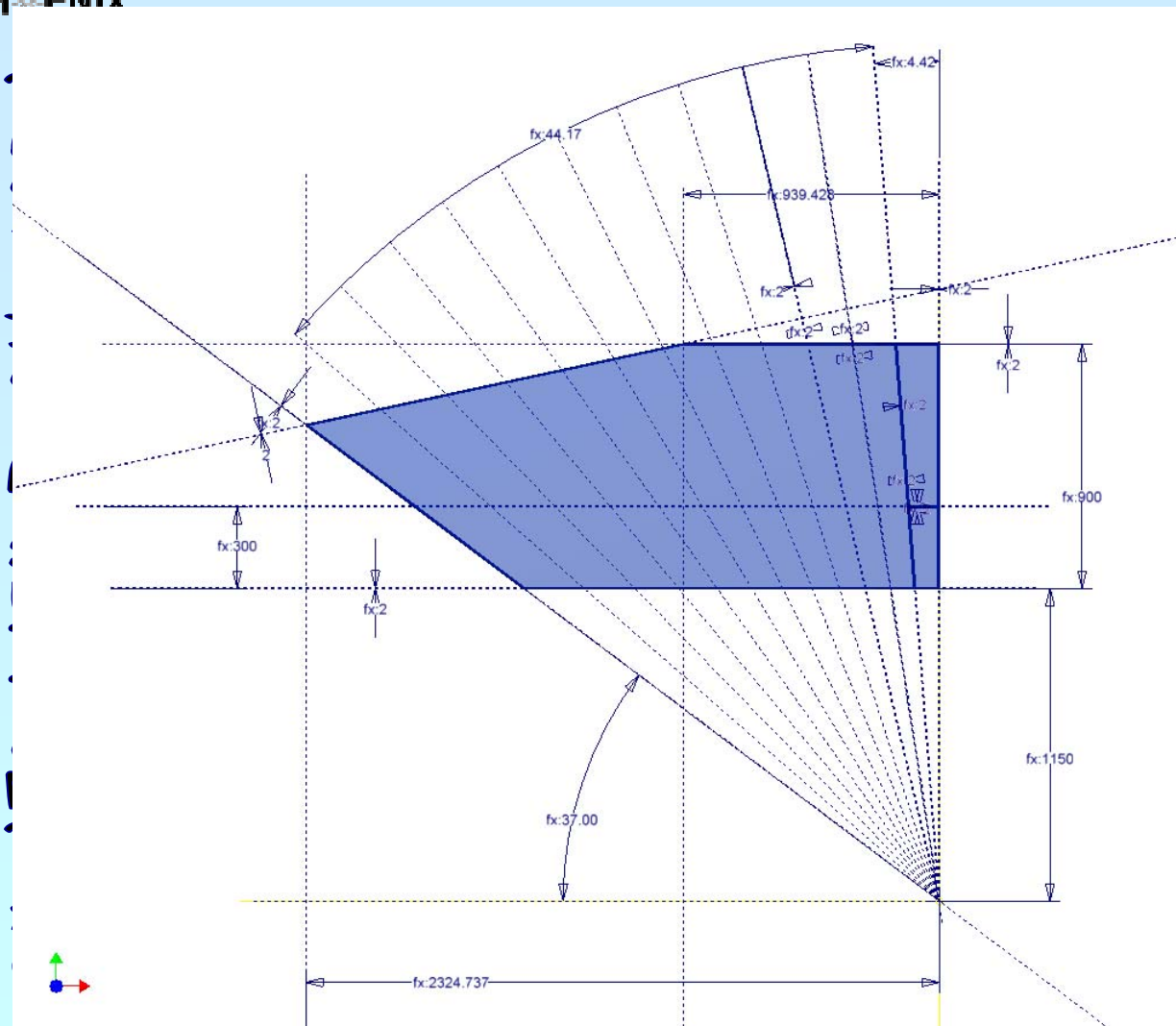


*Note: All dimensions
are current estimates
and subject to change*

Envelope allowance for electronics,
support structure and detector services

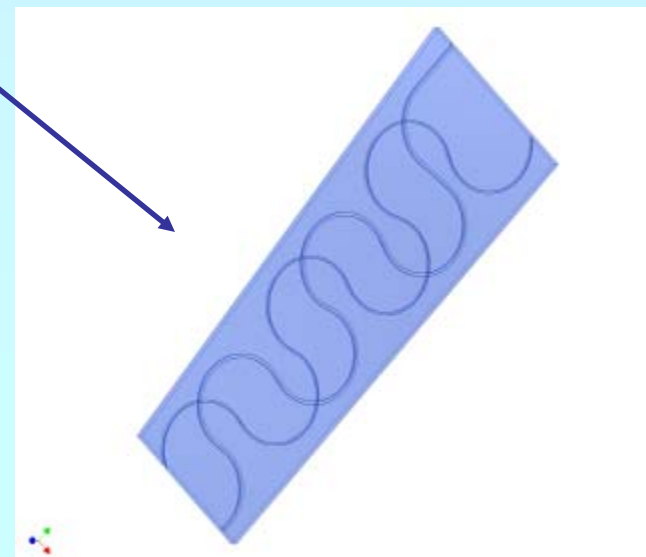
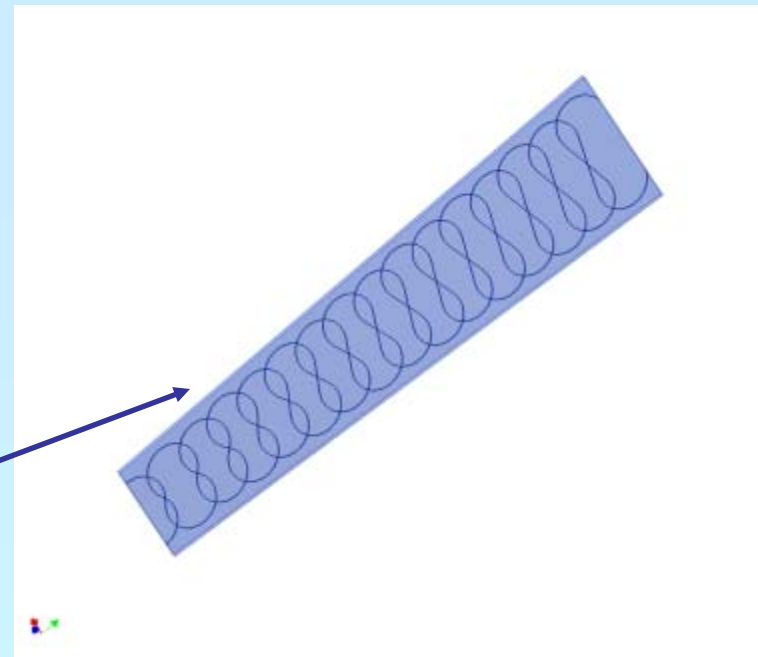
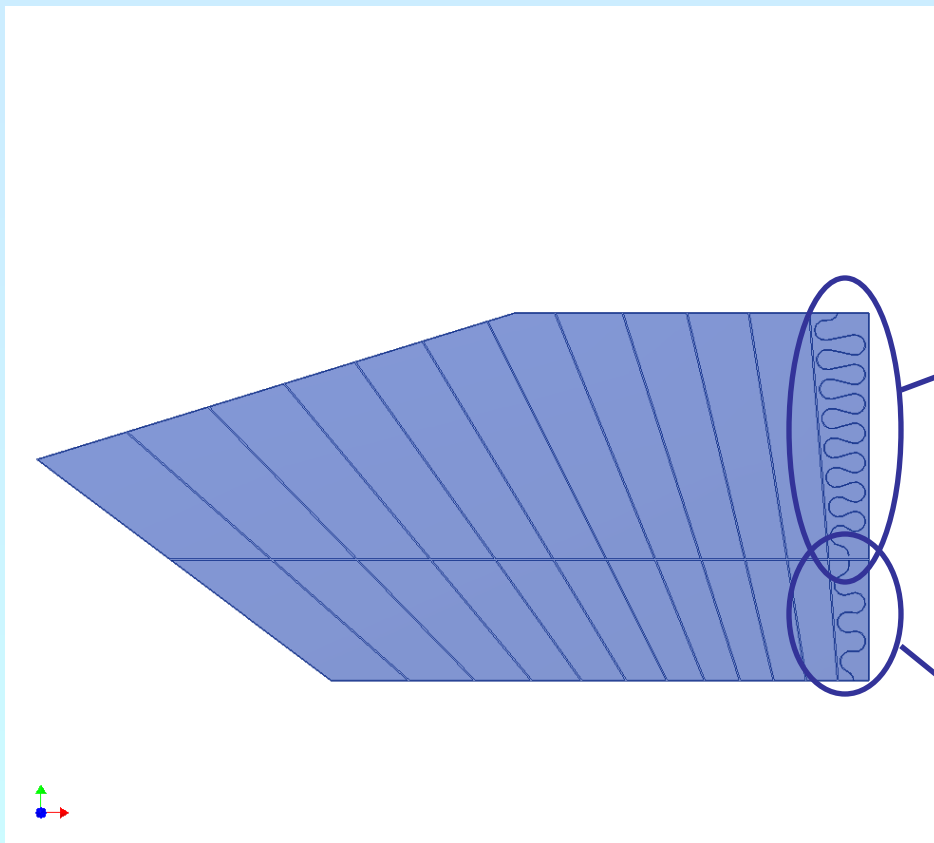


Electromagnetic calorimeter segments using "accordion" shaped scintillators and tungsten plates to optimize detector sampling



Note: dimensions in above illustration are in mm

For conceptual purposes, in order to determine appropriate sizing for individual inner and outer HCal scintillator details, the inner and outer scintillator sheets are combined and segmented for inner and outer and in 12 longitudinal sections from the HCal midplane to its outer edge. The length of any radial path from the Interaction Point (IP) to the outer edge of a scintillator detail (combining the inner and outer HCal paths) is 0.9 m, minimum and 0.99 m maximum. This is why there is an angle cut at the outer edge. There is a conceptual mirror image of this section from the midplane to the other end of the HCal. As such there will be 24 outer and 24 inner scintillator details in each of the 320 scintillator passages.

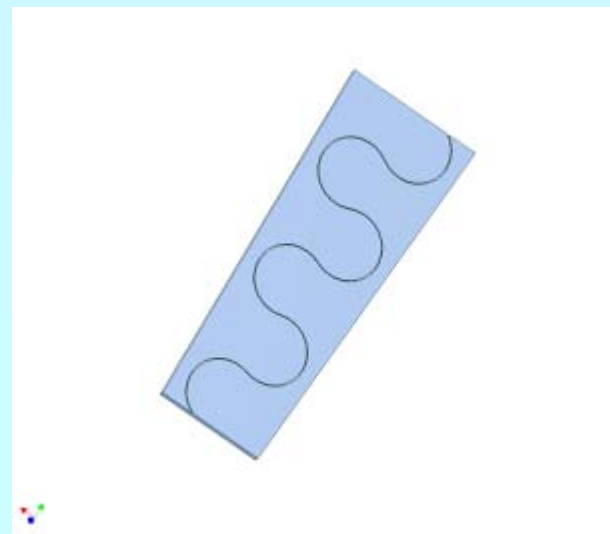
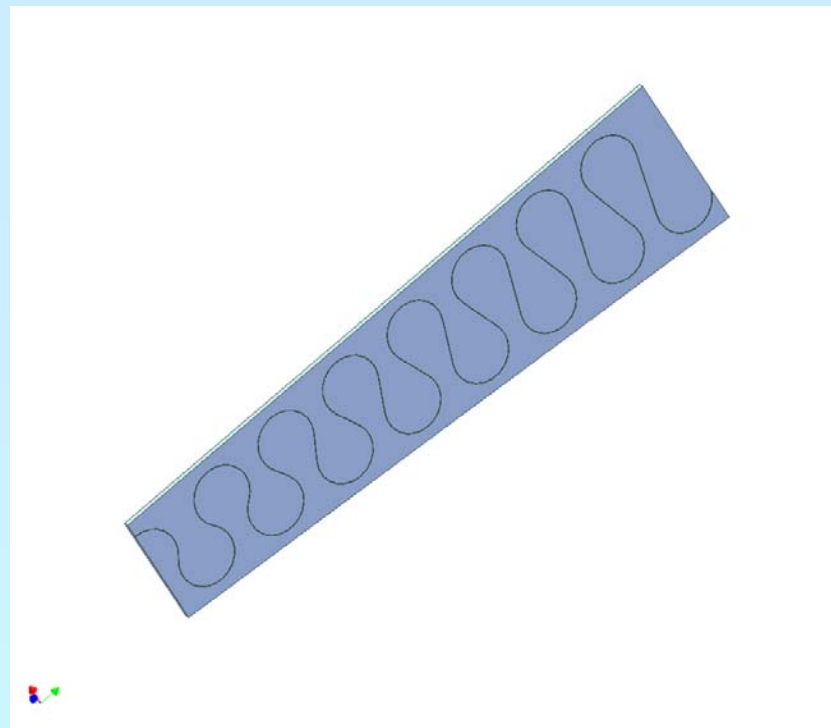


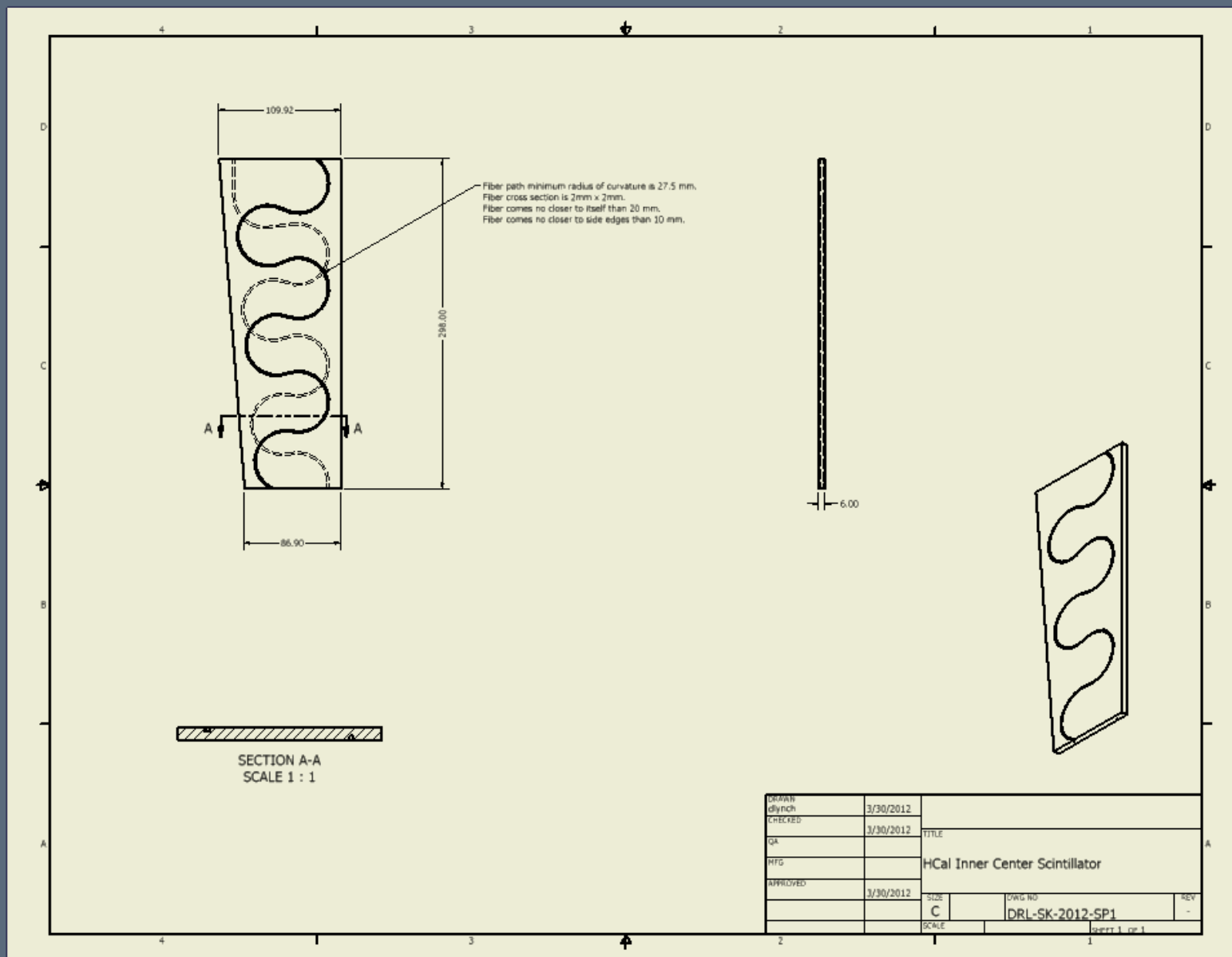
Typical Optic Fiber serpentine patterns on 1 inner and 1 outer scintillator sections. Opposing pattern on opposite side. Outer and Inner single piece blowups are made translucent so that the opposite side fibers pattern can be seen with the near side pattern

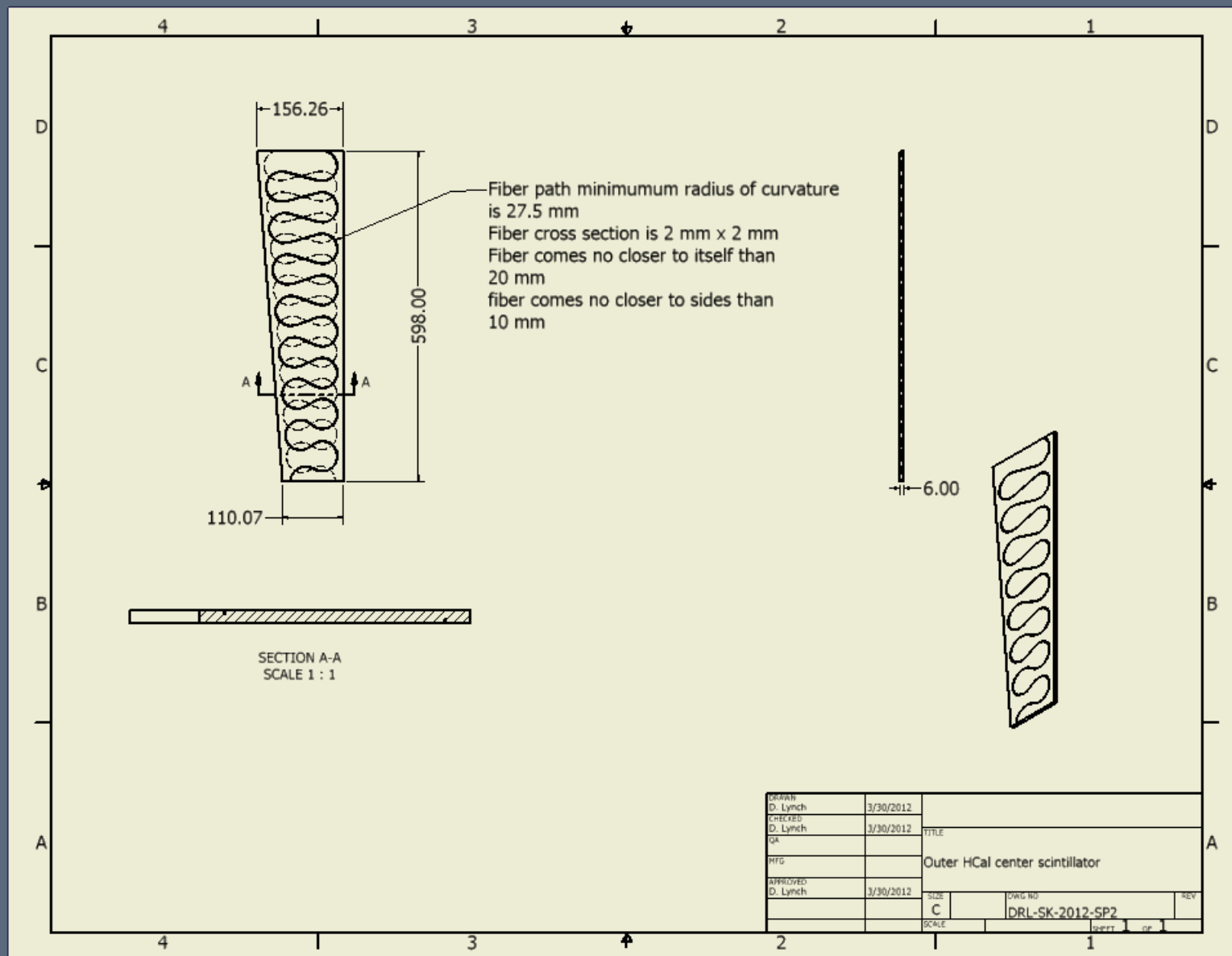
Design Concepts for each scintillator plate detail:

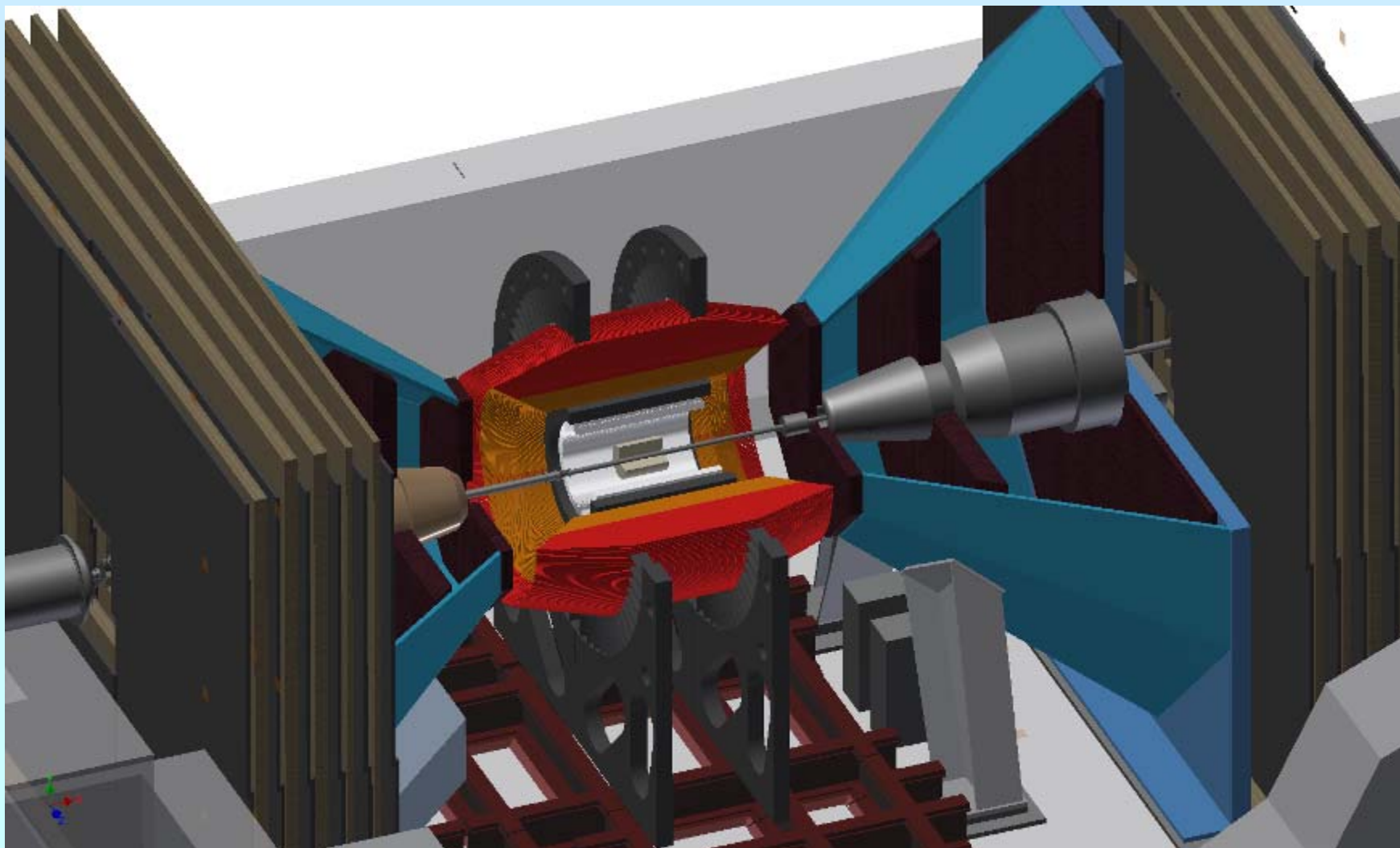
- Each plate has an optic fiber imbedded on both sides (illustrations at right are semitransparent so that the opposing pattern can be seen)
- Minimum fiber bend radius is 2.75 cm
- Fiber is serpentine so as to come no closer than 2 cm to itself at any point and no closer than 1 cm to scintillator edges.
- Crossing of fibers in plane view is as close as possible to 90 degrees to minimize overlap.

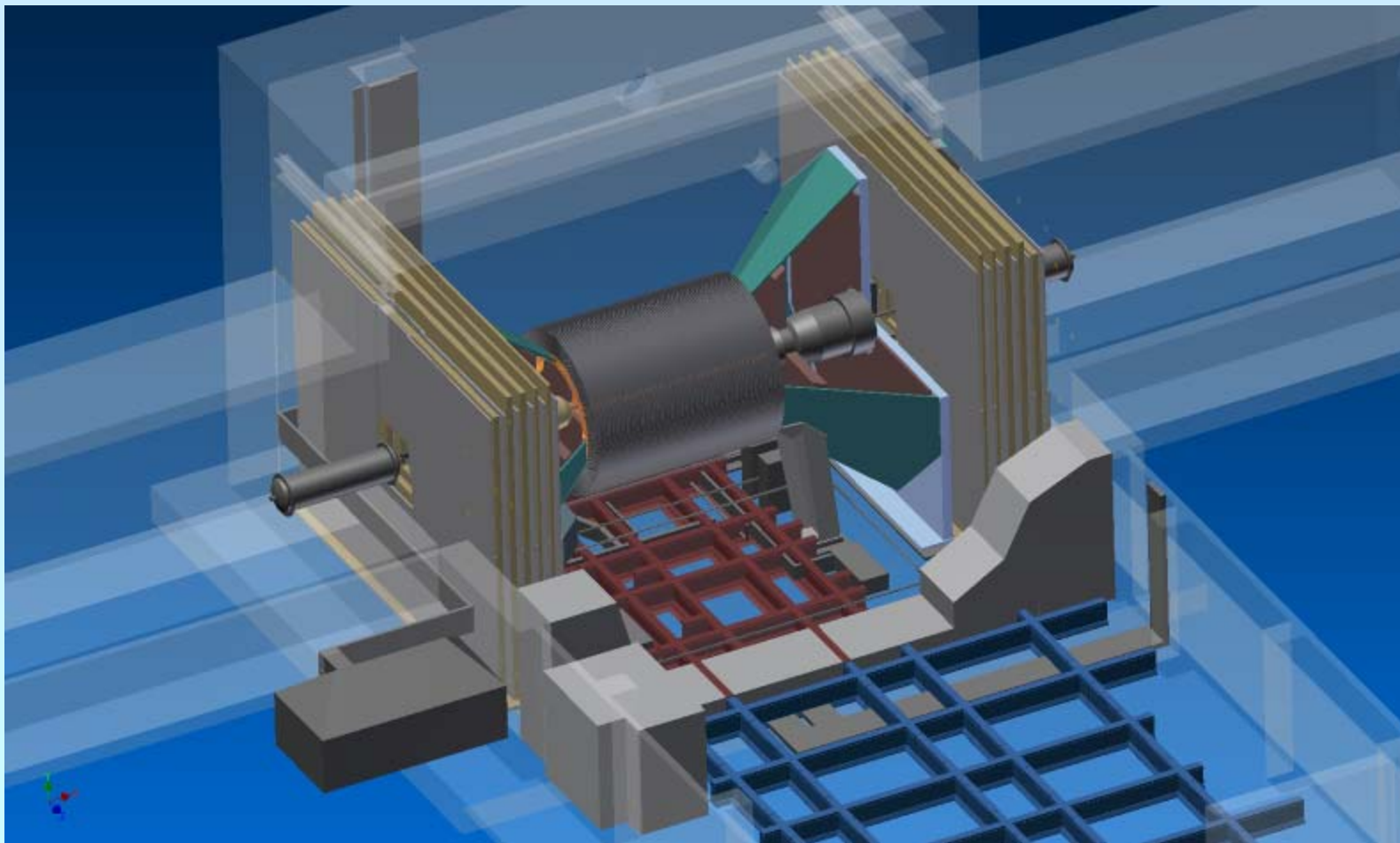
(Note scintillator sections shown are not transparent..Opposite side fiber is not visible)









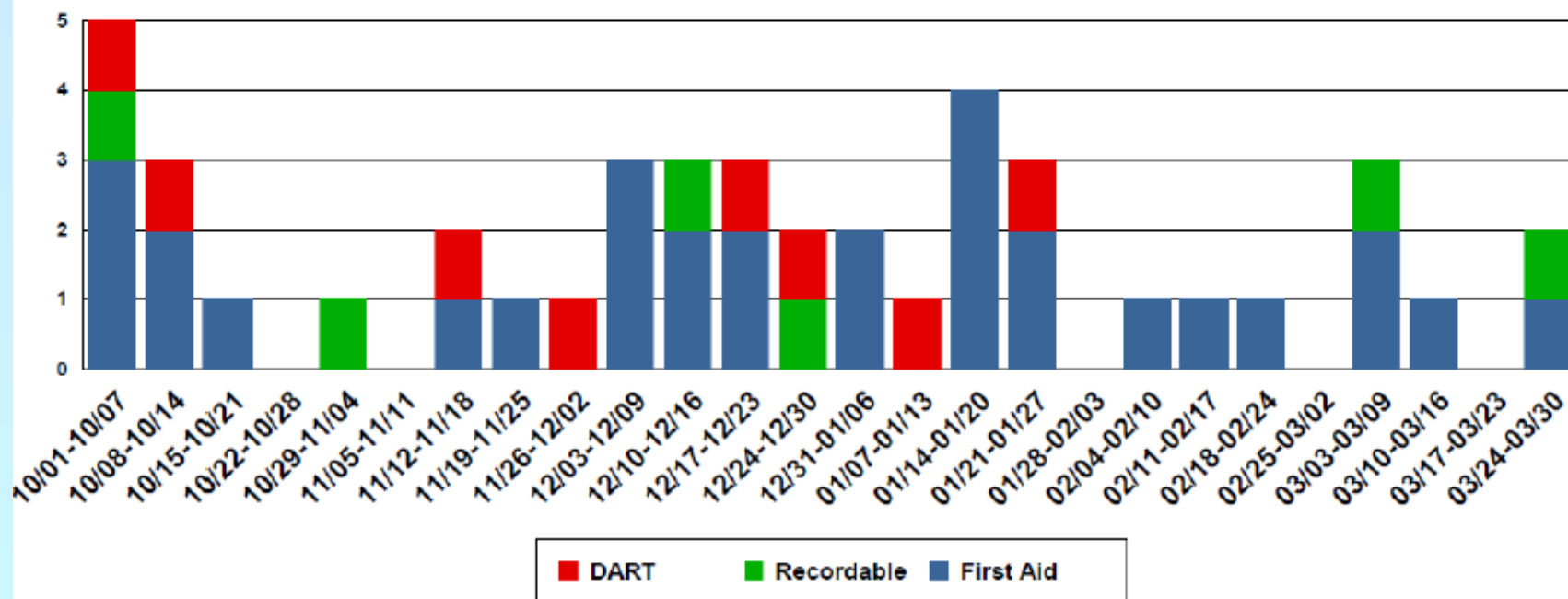


1. Configuration Management - we are reviewing our Config. Management policies and will develop a controlled procedure to assure that we are within Lab guidelines. Using SBMS, CAD and STAR documentation as appropriate. Most important areas are Gas systems, Electrical and safety systems, experimental structures and equipment and infrastructure. Important features to be codified: drawings, procedures, reviews, documentation control and design practices, test and inspection, work planning, legacy items, delineation of configuration control responsibilities between F&O, CAD, Physics, PHENIX (BNL), PHENIX (external collaborators)



2. DOE Health, Safety and Security (HSS) closeout: No specific mention of PHENIX practices, but the following comments probably include observations at PHENIX:
 - + "Plan of the Day (POD) and tool box meetings were very effective and included safety topics and any lessons learned from previous day's work"
 - "A number of SBMS screening guidelines for determining whether work is low hazard or requires a work permit are too subjective to ensure that the appropriate level of work planning is achieved.
 - "SBMS guidance (i.e., SBMS Interim Procedure for Machine Shop Safety and SBMS Screening Guidelines for Work Permit Determination) is lacking in defining expectations for research machine shops with respect to worker training and qualifications, hazard evaluations, and when a work permit is required.

Injuries Per Week (FY) As of 3/30/2012



FY12 YTD: DART – 8, TRC – 14, First Aid – 30

FY11: DART – 27, TRC – 42, First Aid – 45

FY10: DART – 19, TRC – 33, First Aid – 52

FY12 Injury Listing: <https://intranet.bnl.gov/esh/shsd/seg/OccInj/BNLInjuries.aspx>

Recent Injuries

3/28/12	First Aid	An employee fell in the parking lot while reporting to work. At the OMC, first aid was given and the employee was sent for x-rays.
3/26/12	DOE Recordable	An employee lacerated his thumb while pulling equipment. The employee was transported to a local ER, where sutures were placed and prescription medication was given. This is recordable.

Recent Events		
3/29/12	SC-3	UPS batteries in B130 for a computer network overheated causing odor that was sufficient to result in a building evacuation. There was no fire or smoke and no injuries. The UPS was turned off and the building is being ventilated to remove the odor before staff can return to their work space. (Event Link)
3/29/12	Non-Reportable	Testing fire alarms in B490 for the animal facility was intended but the fire alarm for the entire building was accidentally tested. Because there was no notification to building occupants that the fire alarms were being tested, a building evacuation occurred. (Event Link)
3/29/12	SC-3	It was discovered that the 480/208/120V transformers at the NSLS-II project are not grounded in accordance with the approved electrical drawings. This could result in potential shock hazard or equipment damage should an electrical fault occur under the right conditions. Corrective actions are being planned to restore grounding as per the approved drawings. There have been no injuries or equipment damage. (Event Link)
3/27/12	SC-BNL	A steam relief lifted at NSLS-II pendant 4. There was some damage to a fire alarm panel and detectors. There was no injuries and no environmental impacts. UPDATE, 3-27-12, Due to excessive condensation/moisture from the steam release (15 psig) , there is no guarantee of future reliability of the FA Node in SB-4 (fire alarm system) and a new Node will be ordered and the other components installed by our Fire Alarm group will be replaced. Note: It was determined that something must have gotten under the seat of the Pressure Relief Valve (PRV), raising the pressure and setting off the relief valves, then the pressure returned to normal and the relief valves reset. (Event Link)
3/26/12	Non-Reportable	A large water main break occurred on Cosmotron Rd between B902 and B904. Leak was isolated by Water Treatment personnel who were onsite. Fire Group secured the area and checked fire protection to B902, which is ok. Worked with the C-AD Water Group to provide make-up water to a cooling tower which cools a mission critical compressor for Magnet Division. Supplying through water hoses connected to an unaffected source. Repair is in progress. (Event Link)
3/26/12	Operational Emergency	A 3 acre brush fire at southeast corner of BNL. Two outside fire departments responded to assist. No impact on BNL operations. BNL called an Operational Emergency. (Event Link)

Where To Find PHENIX Engineering Info

Happy Easter !!



http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm

